

natural conclusion might well lead to diagnostic nihilism. By its nature, the archeological record essentially provides cross sections of populations. While its level of precision can be argued, the archeological record clearly has a great deal to offer for understanding joint disease if recognized scientific methods are followed. *A Field Guide to Joint Disease in Archeology*, unfortunately, does not provide the necessary guidance for such study.

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LITERATURE CITED

- Altman R, G Alarcon, D Apperlouth, D Bloch, D Borenstein, K Brandt, C Brown, TD Cooke, W Daniel, R Gray, R Greenwald, M Hockberg, D Howell, R Ike, P Kapila, D Kaplan, W Koopman, S Longley, DJ McShane, T Medsger, B Michel, W Murphy, T Osial, R Ramsey-Goldman, B Rothschild, K Stark, and F Wolfe (1990) The American College of Rheumatology criteria for the classification and reporting of osteoarthritis of the hand. *Arthritis and Rheumatism* 33: 1601-1610.
- Leissen JC, H Duncan, JM Riddle, and WC Pitchford (1987) The erosive front: A topographic study of the junction between the pannus and the subchondral plate in the macerated rheumatoid metacarpal head. *J. Rheum.* 15:17-122.

HUMAN EVOLUTION. By Milford H. Wolpoff.
 New York: McGraw-Hill. 1995. 921 pp.
 ISBN 0-07-071827-X. \$40.00 (paper).

This is a revised edition of the author's 1980 textbook, *Paleoanthropology*. Much has changed in these 15 years. The greatest change is in the amount of information available about human evolution, and this is expressed in the size of the two editions: The 1980 volume is a manageable 379 pages whereas the present text contains 921 numbered pages plus more than 300 pages of figures. It is printed on standard-size paper (8 1/2" by 11"), is 6 cm thick, and weighs over 2,500 g. The author writes in a succinct style wasting few words. The volume of information contained here, therefore, is immense.

It would be a remarkable achievement for a single author to assimilate this much information from published sources, but much of what is recorded here are the author's own observations on the original fossils. There is more information about the morphology of hominid fossils here than in any other single source. The ideas expressed in the text are often those developed by the author and not necessarily those of the majority of paleoanthropologists. For an explanation of the consensus view among scholars in this field, the reader would do well to turn elsewhere.

Like the 1980 edition, the book is divided into four parts: the basis for human evolution, the appearance of the hominid line, the development of the human pattern, and the

evolution of modern people. There are 14 chapters in both editions, but the text has been substantially revised, developed, and expanded. Chapter 1 primarily reviews methods of geological dating and ends, as do all chapters, with an essay, "Anatomy of a controversy." These spicy vignettes address contentious issues such as "Women and hominid origins," "Climate changes in hominid evolution," and "Out of Africa—out of luck." Chapter 2 describes processes of evolution and contains thoughtful discussion of topics such as punctuated equilibrium, exaptation, and constraints. Living and extinct primates are the subjects of Chapter 3. The phylogenetic relationships among the Miocene hominoids are difficult to understand and the author is justifiably cautious. As with most topics, the discussion is quite up-to-date and even includes information not yet published.

The next hundred pages of text review what makes hominids unique and why. Subjects include bipedalism, birthing, brains, consciousness, language, neural reorganization, culture, mastication, maturation, and theories on human origins. There is so much information and thoughtful analysis and synthesis in this section that it could stand alone as a separate book. The next section is on *Australopithecus* and *Homo habilis* (over 200 pages) and also could make a separate book. Here the reader encounters detailed and current descriptions and analyses of all important fossils. Some of these specimens have not been described in the published

literature and a few are not even publicly announced. One learns, for example, that "... preliminary observations on the lower limbs and pelvis indicate an adaption to obligate bipedalism" in *A. ramidus* (p. 267). Although other views are discussed, the author presents a strong case for a late divergence of the lineages leading to early *Homo* and the late "robust" australopithecines, *A. robustus* and *boisei*. This implies that *A. aethiopicus* evolved its apparently unique resemblances to these late robust forms independently.

Those expecting to find the first appearance of *Homo sapiens* in Africa about 130,000 years ago will be surprised to read that "the earliest known clearly diagnosed *H. sapiens* cranium is a 1.90–1.88 myr cranial fragment from East Turkana . . ." (p. 420). The reason behind this surprising statement is one of nomenclature: The author lumps all non-*habilis*/*rudolfensis* *Homo* into one species, *H. sapiens*. The first member of this taxa, therefore, is KNM-ER 2598, which others might assign to early *H. erectus* or *H. ergaster*. This will take some getting used to, but the author points out that there is no distinct anatomical boundary between *H. erectus* and *H. sapiens*, and relative to ancestral conditions, almost no apomorphies that are unique to *H. erectus*.

More than half the book is devoted to the evolution of *H. sapiens*. The presentation is flavored by the author's view of regional continuity:

Multiregional evolution posits that humans evolved as an interconnected polytypic species from a single origin in Africa some 2 myr ago. The small population effects during initial colonizations as humans expanded out of Africa helped establish regional differences, which were subsequently maintained through isolation-by-distance and adaptive variation. Advantageous changes spread widely because of genic exchanges and the common background of the evolving cultural system whose elements also could spread. Most modernizing features arose at different times and places and diffused independently, according to this model of population variation and evolutionary

change in a widespread, geographically diverse species that is internally subdivided. (p. 549)

Each region is treated to detailed analysis and the author finds support for this view everywhere, even in Europe where Neanderthals become anatomically modern *H. sapiens*. It is certainly a kinder, gentler scenario than those arising from replacement theory, but is it true? The answer may never be known. Recent history includes episodes of both replacement and assimilation.

This is not a book that I would recommend as a textbook. It has far too much detail for any undergraduate course. It lacks the editorial polish of the first edition. Indeed, it is part of McGraw-Hill's College Custom Series, which means that it was produced from camera-ready copy and without the usual editorial support of a textbook publisher. The virtue of this format is that the author anticipates annual revision. The most obvious limitations to this style of publishing are the figures which, in this year's edition, are not integrated into the text (they appear at the end of each chapter) and are of photocopy quality. The numerous black and white photos of fossils are, therefore, almost impossible to make out. The reduced editorial support resulted in the inevitable text errors, missed citations, and other difficulties, although there is a very useful glossary and carefully edited index. The referencing is vague, without specific author and date citations. Finally, its use as a textbook could be problematical for instructors who wish to emphasize consensus opinions: The author's views are often contrary to the conclusions of most other paleoanthropologists.

It may be difficult to use as a textbook, but nonetheless, the prodigious effort by the author must be fully acclaimed. A synthesis of this immense subject on such a scale is a great accomplishment. It is a rich mine of details and ideas about our ancestry.

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